

REMARKS

Claims 1 to 9 were pending in the application. Claims 1 and 2 have been cancelled without prejudice or disclaimer. Claims 3, 4 and 6 have been amended. No new matter has been introduced. Thus, claims 3 to 9 are submitted for reconsideration at this time.

Specification

The specification is objected to because the abbreviated term "USB" needs to be defined before any abbreviation is introduced. Applicant has amended the specification accordingly. Withdrawal of the objection to the specification is solicited.

Applicant has further amended the specification to include the reference symbol "19" for the engaging unit. No further changes have been made.

The changes noted above have been included in the substitute specification attached hereto as Appendix A. A marked up version showing the changes made is also submitted herewith as Appendix B. No new matter has been introduced.

Drawings

The drawings are objected to for failing to depict an engaging unit disposed on the engaging end of the supporting portion as claimed. Applicant has amended the drawings to label the engaging unit 19 on the engaging end 122 of the supporting portion 12.

The drawings are also objected to for failing to include the reference signs for the connecting end and the engaging unit mentioned throughout the specification and claims. The originally filed FIG. 4 includes the reference sign 121 for the connecting end. The engaging unit has been labeled as noted above.

Withdrawal of the drawing objections is solicited.

Rejections Under 35 U.S.C. §102(b)

Claims 1 to 5 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,715,137 to Choi ("Choi" hereafter). Claims 1 and 2 have been cancelled without prejudice or disclaimer. Applicant respectfully traverses the rejection of claims 3 to 5 for at least the following reasons.

Choi discloses an attaching member 190 for attaching a display panel 100 to a side wall 193 (col. 3, lines 58 to 60). The disclosed attaching member 190 in Choi includes a shaped piece 191 detachably secured to the base 151, and a matching piece 192 for engaging with the shaped piece 191 (col. 3, lines 60 to 63). Attaching

member 190 cannot, however, represent the presently claimed structure, because the attaching member 190 does not include an engaging lug capable of engaging an engaging hole so as to rigidly support the attaching member 190 with the base. In this regard, the Office Action implicitly asserts that the pegs on shaped piece 191 in Choi (see FIG. 2) represent the claimed engaging lug, because they are capable of engaging the holes of base 151. However, these pegs do not prevent rotation of the base 151 relative to the shaped piece 191, and thus do not "rigidly support" the attaching member 190 as presently claimed.

Additionally, Choi fails to disclose or suggest a base having a top surface formed with a receiving recess for receiving an engaging end of the supporting portion therein, the receiving recess including an engaging hole for engaging an engaging lug of a supporting portion, as claimed. Rather, as noted above, the Office Action implicitly asserts that the holes of base 151 in Choi (see FIG. 2) represent the claimed engaging hole. These holes in Choi, however, are not formed *in a receiving recess of a top surface of base 151*. Rather, they are formed on a side surface of base 151, which is not recessed from the top surface of base 151, as claimed.

Thus, for at least the aforementioned reasons, Choi fails to anticipate the presently claimed invention. Withdrawal of the rejection under 35 U.S.C. §102(b) is solicited.

Rejection Under 35 U.S.C. §103(a)

Claims 6 to 9 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Choi in view of U.S. Patent No. 6,268,998 to Cho ("Cho" hereafter). Claims 6 to 9 are believed to be allowable for at least the aforementioned reasons with respect to claim 3, in addition to the further patentable features recited therein.

Additionally, the Office Action asserts that Cho discloses an audio signal input port adapted to receive an external audio signal, and an internal circuit enabling a loudspeaker to reproduce the external audio signal from the audio signal input port as recited in pending claim 8. Applicant respectfully disagrees. While Cho indeed discloses speakers and an audio signal input port for receiving audio signals, there is no disclosure in Cho of an internal circuit enabling the speakers to reproduce the external audio signal. Thus, Cho fails to rectify this deficiency in Choi.

Allowance of claims 6 to 9 is solicited.

Conclusion

Applicant believes that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

Respectfully submitted,

By



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Should additional fees be necessary in connection with the filing of this paper, or if a petition for extension of time is required for timely acceptance of same, the Commissioner is hereby authorized to charge deposit account No. 19-0741 for any such fees; and applicant hereby petitions for any needed extension of time.

APPENDIX A



LIQUID CRYSTAL DISPLAY WITH A DETACHABLE BASE

BACKGROUND OF THE INVENTION

1. Field of the Invention

5 [0001] The invention relates to a liquid crystal display, more particularly to a liquid crystal display with a detachable base.

2. Description of the Related Art

10 [0002] Figure 1 illustrates a conventional liquid crystal display 2. The conventional liquid crystal display 2 includes a base 23 disposed on a plane (not shown), a supporting portion 22 having a lower end connected integrally to the base 23, and an upper end opposite to the lower end, and a liquid crystal display panel 21 connected pivotally to the upper end of the supporting portion 22 such that the liquid crystal display panel 21 can be rotated relative to the supporting portion 22 within a limited angular range. However, due to the adjustable viewing angle, the distance between front and rear ends of the base 23 must be at least
15 four times the thickness of the liquid crystal display panel 21 for ensuring stability of the conventional liquid crystal display 2 when adjusting the liquid crystal display panel 21. Because the base 23 is not designed to be detachable from the supporting portion 22, the conventional liquid
20 crystal display 2 has a relatively large packaging size requirement (indicated by dotted lines in Figure 1), thereby
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resulting in higher costs.

SUMMARY OF THE INVENTION

[0003] Therefore, the object of the present invention is to provide a liquid crystal display with a detachable
5 base to result in a smaller packaging size requirement.

[0004] According to the present invention, a liquid crystal display comprises:

[0005] a liquid crystal display panel;

[0006] a supporting portion having a connecting end
10 connected non-removably to the liquid crystal display panel,
and an engaging end opposite to the connecting end;

[0007] a base connected detachably to the engaging end
of the supporting portion; and

[0008] an engaging unit disposed on the engaging end of
15 the supporting portion and the base for providing a releasable
engagement between the supporting portion and the base.

BRIEF DESCRIPTION OF THE DRAWINGS

[0009] Other features and advantages of the present invention will become apparent in the following detailed
20 description of the preferred embodiments with reference to
the accompanying drawings, of which:

[0010] Figure 1 is a schematic side view of a conventional liquid crystal display;

[0011] Figure 2 is an exploded fragmentary perspective

view showing the first preferred embodiment of a liquid crystal display according to this invention;

[0012] Figure 3 is a schematic side view showing a packed state of the first preferred embodiment;

5 [0013] Figure 4 is an exploded, schematic side view showing the first preferred embodiment;

[0014] Figure 5 is a fragmentary bottom perspective view showing the first preferred embodiment; and

10 [0015] Figure 6 is an exploded perspective view showing the second preferred embodiment of a liquid crystal display according to this invention;

[0016] Figure 7 is a schematic rear view showing the second preferred embodiment; and

15 [0017] Figure 8 is a schematic circuit block diagram of the second preferred embodiment.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

20 [0018] Before the present invention is described in greater detail, it should be noted that like elements are denoted by the same reference numerals throughout the disclosure.

25 [0019] Referring to Figures 2 and 4, according to the preferred embodiment of this invention, a liquid crystal display 1 is shown to include a liquid crystal display panel 11, a supporting portion 12, a base 13, and an engaging unit 19.

[0020] The liquid crystal display panel 11 is used for displaying images, such as text or pictures.

[0021] The supporting portion 12 has a connecting end 121 connected non-removably to the liquid crystal display panel 11, and an engaging end 122 opposite to the connecting end 121. The connecting end 121 is connected pivotally to the liquid display panel 11 in a conventional manner such that the liquid crystal display panel 11 can be rotated relative to the supporting portion 12 within a limited angular range. The engaging end 122 is formed into a rectangular.

[0022] The base 13 is connected detachably to the engaging end 122 of the supporting portion 12. The base 13 has a top surface 131 formed with a rectangular receiving recess 130 for receiving the engaging end 122 of the supporting portion 12.

[0023] The engaging unit 19 is disposed on the engaging end 122 of the supporting portion 12 and the base 13 for providing a releasable engagement between the supporting portion 12 and the base 13. In this embodiment, the engaging unit 19 includes four resilient engaging lugs 1221 formed on the engaging end 122 of the supporting portion 12, and four engaging holes 1311 formed in the receiving recess 130 of the base 13. Each of the engaging lugs 1221 is capable of engaging a respective one of the engaging holes 1311 when the engaging end 122 of the supporting portion 12 is disposed in the receiving recess 130 of the base 13.

[0024] The liquid crystal display 1 further includes a positioning unit disposed on the engaging end 122 of the supporting portion 12 and the base 13 for positioning the engaging end 122 in the receiving recess 130. In this
5 embodiment, the positioning unit includes two vertically extending positioning grooves 1222 formed in the engaging end 122 of the supporting portion 12, and two vertically extending positioning ribs 1312 formed in the receiving recess 130. Each of the positioning ribs 1312 is capable
10 of engaging a respective one of the positioning grooves 1222 when the engaging end 122 of the supporting portion 12 is disposed in the receiving recess 130 of the base 13.

[0025] Figures 6 and 7 illustrate the second preferred embodiment of a liquid crystal display according to the
15 present invention, which is a modification of the first preferred embodiment. Unlike the previous embodiment, the base 13' further has an internal circuit 17 mounted therein, a pair of loudspeakers 14 mounted therein and coupled electrically to the internal circuit 17, and two universal
20 serial bus (USB) connectors 15 mounted thereon and coupled electrically to the internal circuit 17. Referring to Figure 8, the internal circuit 17 has an input port 170 adapted to receive an AC power input from a power source (not shown), and an output port 171 coupled electrically to an input 110
25 of the liquid crystal display panel 11 via an external cable 18 (see Figure 7). The internal circuit 17 is adapted to

convert the AC power input from the input port 170 into a DC power input that is supplied to the liquid crystal display panel 11. The internal circuit 17 further has an audio signal input port 172 adapted to receive external audio signals from a computer (not shown). The internal circuit 17 enables the loudspeaker 14 to reproduce the external audio signals from the audio signal input port 172. The internal circuit 17 further has an input port 173 adapted to receive control signals from a computer (not shown). The internal circuit 17 is adapted to transmit the control signals from the input port 173 to peripheral equipment (not shown) connected to the USB connectors 15.

[0026] Due to the presence of the engaging unit 19 and the positioning unit, the assembly of the liquid crystal display panel 11 and the supporting portion 12 can be supported stably on the base 13. The base 13 can be easily detached from the supporting portion 12 by pressing the engaging lugs 1221 from a bottom side of the base 13 (see Figure 5) to release the engagement between the engaging lugs 1221 and the engaging holes 1311. Therefore, after detaching the base 13 from the supporting portion 12, the liquid crystal display 1 of this invention can have a relatively small packaging size requirement (indicated by dotted lines in Figure 3) to result in lower costs.

[0027] Moreover, although the size of the base 13 depends on that of the liquid crystal display panel 11, the supporting

portion 12 can be designed to have a uniform size such that the supporting portion 12 can be applied to different sizes of liquid crystal display panels with different sizes. A lower mold expenditure is thus incurred as compared to the
5 abovementioned conventional liquid crystal display.

[0028] While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but
10 is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.

APPENDIX B

LIQUID CRYSTAL DISPLAY WITH A DETACHABLE BASE

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20 23 must be at least four times the thickness of the liquid crystal display panel 21 for ensuring stability of the conventional liquid crystal display 2 when adjusting the liquid crystal display panel 21. Because the base 23 is not
25 designed to be detachable from the supporting portion 22, the conventional liquid crystal display 2 has a relatively large packaging size requirement (indicated by dotted lines in Figure 1), thereby resulting in higher costs.

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[0007] a base connected detachably to the engaging end of the supporting portion; and

40 [0008] an engaging unit disposed on the engaging end of the supporting portion and the base for providing a releasable engagement between the supporting portion and the base.

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5 [0009] Other features and advantages of the present invention will become apparent in the following detailed description of the preferred embodiments with reference to the accompanying drawings, of which:

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20 [0025] Figures 6 and 7 illustrate the second preferred embodiment of a liquid crystal display according to the present invention, which is a modification of the first preferred embodiment. Unlike the previous embodiment, the base 13' further has an internal circuit 17 mounted therein, a pair of loudspeakers 14 mounted therein and coupled electrically to the internal circuit 17, and two universal serial bus (USB) connectors 15 mounted thereon and coupled electrically to the internal circuit 17. Referring to Figure 8, the internal circuit 17 has an input port 170 adapted to receive an AC power input from a power source (not shown), and an output port 171 coupled electrically to an input 110 of the liquid crystal display panel 11 via an external cable 18 (see Figure 7). The internal circuit 17 is adapted to convert the AC power input from the input port 170 into a DC power input that is supplied to the liquid crystal display panel 11. The internal circuit 17 further has an audio signal input port 172 adapted to receive external audio signals from a computer (not shown). The

internal circuit 17 enables the loudspeaker 14 to reproduce the external audio signals from the audio signal input port 172. The internal circuit 17 further has an input port 173 adapted to receive control signals from a computer (not shown). The internal circuit 17 is adapted to transmit the control signals from the input port 173 to peripheral equipment (not shown) connected to the USB connectors 15.

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[0028] While the present invention has been described in connection with what is considered the most practical and preferred embodiments, it is understood that this invention is not limited to the disclosed embodiments but is intended to cover various arrangements included within the spirit and scope of the broadest interpretation so as to encompass all such modifications and equivalent arrangements.